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Report Identifying Changes in Data and Newly-Identified Sources

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REPORT IDENTIFYING CHANGES IN DATA AND NEWLY IDENTIFIED SOURCES

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**REPORT IDENTIFYING CHANGES IN DATA AND
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REPORT IDENTIFYING CHANGES IN DATA AND NEWLY IDENTIFIED SOURCES

I. Background and Scope

Over time the content and format of the data provided by the Combat Training Centers (CTCs) to the Combat Training Center Archive at the Presidio of Monterey has changed. This report documents the changes that occurred during the first three quarters of FY-94. Each CTC is discussed in turn.

A. BCTP - Battle Command Training Program This Combat Training Center was identified as a potential provider of information to the CTC Archive. However, the data gathering and reporting concerning war fighter exercises at this CTC needed to be modified so that the data would be compatible with the other information in the CTC Archive. In the meantime, the Army decided that the CTC Archive should be moved to Ft. Leavenworth, Kansas to be managed by the Army Historian. Consequently, no data from BCTP was forwarded to the Archive at Presidio of Monterey.

B. CMTC - Combat Maneuver Training Center During the first three quarters of FY-94 CMTC sent data from a total of three rotations to the CTC Archive. All three involved Peace Keeping Operations, which are significantly different from the maneuvers historically conducted at this CTC (and from which data have been incorporated into the CTC Archive). Consequently, there were no data from these FY-94 rotations added to the Archive. The other rotations conducted at CMTC during this period of time involved foreign units. Again, data from these rotations was not added to the Archive. All of the Take Home Packages received were added to the Archive's holdings.

C. JRTC - Joint Readiness Training Center During this period JRTC BDA data were reported from only five rotations (of nine conducted), and these reports were so inconsistent as to render much of the data useless. One rotation had no reported equipment BDA data, and two other rotations only reported OPFOR equipment BDA. In some cases the reports consisted of amounts of equipment lost, without the numbers starting. Personnel BDA reports were somewhat more complete, but one rotation was eliminated because only one mission was reported and the number of soldiers wounded in action exceeded the number starting. Requests for supplementary data, clarification, and replacements for missing data were not answered. The cessation of data reports at the fifth rotation was never explained. The collection and processing of data at this CTC need thorough review before a new data stream is accepted into the Archive at Ft. Leavenworth.

D. NTC - National Training Center A special rotation at NTC brought to light many data sources that had not been apparent previously, and the Take Home Package provided to the rotating unit was substantially changed during this time period. These events are discussed in greater detail in the following paragraphs.

Desert Hammer VI, a special rotation testing electronic enhancements to command and control (and other battlefield systems), drove many efforts to enhance the data collection at this CTC. NTC Observer/Controllers (OCs), in conjunction with the Mounted Warfighting Battlespace Laboratory, developed a wide variety of data collection instruments that were used during three 'baseline' rotations (94-05, 94-06, and 94-08) in addition to Desert Hammer VI (Rotation 94-07). The data collected using these instruments was only collected during the four rotations mentioned. This constituted a special purpose database that was compiled and turned over to the Mounted Warfighting Battlespace Laboratory. None of this data was incorporated into the Archive. The Desert Hammer experience did provide insight into data that are routinely collected at the NTC that had not previously been incorporated into the CTC Archive:

- 1) The OC team working with indirect fire systems (artillery and mortars) routinely collects information on the numbers of rounds fired and their effectiveness. They also collect information on who called for the fires, which could be used to assess the impact of improved means of electronic communication on processing calls for fire. This information would be a valuable addition to the Archive concerning indirect fire.

- 2) The Dragon OC team at NTC collects BDA data on the live-fire engagements. This data had never before been made available to researchers, or to the rotating units in their Take Home Packages. To the extent that live-fire allows an assessment of some skills that may not be addressed in the force-on-force missions, this information could prove very useful. If there is overlap in the skills addressed in the two types of missions, the redundancy could make overall performance assessments more stable from a statistical standpoint. This increased stability would contribute to the construction of explanatory models linking home station training to CTC outcomes. Force-on-force missions tend to emphasize offense (typically, only one mission in five is defense). The addition of defensive missions from live-fire (typically two of the three missions performed) could be used to clarify a unit's defensive strengths and weaknesses.

- 3) Data about the times at which orders are received and orders and graphics are prepared and sent to subordinate units were routinely collected during Desert Hammer VI and the baseline rotations. This information would be useful to researchers inquiring about the amount of time required to prepare and disseminate orders.

- 4) The Desert Hammer data collection also included information about breaching obstacles : the time the obstacle was encountered, how long it took to breach (or bypass), and how many vehicles and personnel were lost crossing the obstacle. Data about BLUFOR obstacles and positions also were captured, including whether they were constructed to standard and the obstacles covered by direct and/or indirect fire.

The NTC Take Home Package (THP) underwent a profound change at the end of this reporting period. Where it had been a 1300 page tome that required several months to produce, it was replaced (in 94-09) by a streamlined report under 200 pages in length. Unfortunately, from the perspective of long-term research in the CTC Archive, the data content declined as precipitously as the page count. Some specific observations are:

1) The former THP contained lengthy narratives describing each battle in terms of the battlefield operating systems (BOS). Researchers had learned how to mine these narratives for assessments of performance with respect to critical combat tasks identified in Army Mission Training Plans and other documents. Although this process was very labor intensive, it appeared to provide some very insightful information about the conduct of engagements at the NTC. A key to this analytic capability was that the narratives provided a linkage between causes and consequences that allowed the researcher to develop an understanding of the way in which the battle was conducted.

2) The new THP consists of a series of briefing slides. On some of the pages up to 20 percent of the ink is devoted to icons representing OC teams and to borders and legends around tables or summaries of the sequence of actions. What Tufte¹ calls the 'data-to-ink-ratio' is relatively low on these pages. There is little narrative 'meat' to this report. It does not provide the researcher with an understanding of how the decision-making process flowed into actions on the battlefield.

3) On the other hand, the new report is succinct. For a given mission, each BOS is accorded enough space to write about 3 to 5 sentences describing positive or negative aspects of the performance. It is not clear whether the OCs will report on a consistent set of items from mission to mission and rotation to rotation, or whether each will focus on different aspects of these BOSs. If the latter strategy is adopted, then it will be difficult to derive long-term trends in performance. The items cited as positive or negative are not linked to outcomes, so the reason for citing them must be inferred. Some comments (e.g. "ADA integration in the planning process.") are not clearly positive or negative, so they contain little useful information.

4) Other information is conveyed in tables that indicate whether certain tasks were performed by each unit. These could be very valuable for deriving long-term trends, if the tasks and rating scales are maintained over time. BDA data from live-fire missions was included for some missions in the THP for 94-09. If continued, this is a positive development, for reasons given earlier.

5) The THP was traditionally the source of the BDA data maintained in separate tables in the CTC Archive. The new THP format greatly condenses the BDA information from what it had been in the earlier format. OPFOR information (when presented) is sometimes limited to tanks and BMPs. BLUFOR data does not cover the wide range of systems previously covered. There are discrepancies in data reported about the same mission in different tables. For example, for one mission in 94-09 there are four tables that report about M1A1s. The table titled "Combat Potential" shows 24 started and 15 were lost. A table titled "US Strengths and Losses" has 24 starting, but 16 lost. The table "Total Combat Power" states that 26 started (of a total of 30 available). The table "M1A1 Firing Data" lists 24 vehicles by bumper number, but indicates special status for 10 of them: 3 were at UMCP (and fired no rounds); 2 were in the 'Trains' (one fired one round); 1 was in 'Maint' (and fired one round); 2 others were declared 'INOP' (no

¹ Tufte, E. R. (1983). *The visual display of quantitative information*. Cheshire, CT: Graphics Press.

rounds fired) and 2 were identified as 'C-2 Platforms' (no rounds fired from either). This paints a very confusing picture of the actual combat strength of the unit at the start and conclusion of this mission. Ignoring the vehicles in UMCP, declared INOP, or in other special categories, the loss rate for M1A1s in this battle could be estimated as $15/26 = 58\%$ or as $16/24 = 67\%$. Error rates like this make it difficult to spot interesting trends.

6) The inclusion of rounds fired data is valuable and should be continued. The table that summarizes the rounds by type and the number of enemy systems killed is particularly useful. It should be checked for agreement with OPFOR BDA tables, however.

7) Finally, the new reports are done in a graphic-oriented software, making it much more difficult to cut and paste information into searchable databases than was formerly the case when the THPs were done using WordPerfect. The Army should consider using a more transportable format such as rich text format (RTF) or portable document file (PDF) for promulgation of these materials so that researchers could extract information more readily.

Altogether, the Army has weakened an important research tool for the benefits of reducing the cost of production and speeding the resulting product into the hands of the BLUFOR unit that participated in the training. On the positive side, there are some new quantitative data included in the reports that may prove to be valuable in creating future trendlines.

II. Epilogue

The CTC Archive has now moved to Ft. Leavenworth. The new stewards of this valuable Army resource need to be sure that they attend both to the gathers of the data as well as the consumers as they develop systems for capturing, storing, and reporting information from the Combat Training Centers.